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ABSTRACT

This revised material replaces the 1972 edition of "Cable Data" (ED 071 397). This short booklet provides basic data describing cable television in these areas: (1) number and locations of systems, (2) growth and size, (3) ownership and profitability, (4) service and program origination, and (5) two-way and pay-cable experiments. (WCM)

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CABLE DATA

CABLE TELEVISION INFORMATION CENTER
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PREFACE

This document was prepared by the Cable Television Information Center under grants from the Ford Foundation and the John and Mary R. Markle Foundation to The Urban Institute.

The primary function of the center's publications program is to provide policy makers in local and state governments with the information and analytical tools required to arrive at optimum policies and procedures for the development of cable television in the public interest.

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EXPLANATORY NOTE

Because the facts about the state of cable television are changing rapidly, the center has revised the original "Cable Data" published in 1972 as part of the Publications Service. This material replaces that publication entirely. The reader may wish to substitute this revision for the older material within the heavy cover in his binder.

CONTENTS

NUMBER OF SYSTEMS

About 11 per cent of the television households in the U.S. are on the cable: an estimated eight million households or almost 25 million people. As of January 7, 1974, Television Digest counted 3,033 cable systems in operation, serving 6,104 communities. Franchises had been awarded in another 1,848 communities which have not begun operation. Applications for franchises were pending in another 1,228 communities.

GROWTH OF CABLE

In the decade from 1963 to 1973, the industry showed a 22.6 per cent compound growth rate in subscribers and an 11.5 per cent compound growth rate in number of systems (computed yearly on the basis of increases since the previous year).

In the same decade, the size of an average system almost tripled.

SIZE OF CABLE SYSTEMS

Cable television systems range in size from under 50 to over 70,000 subscribers. According to Television Digest, the largest system in October 1973 was in San Diego, California with 75,000 subscribers, followed by New York City's Sterling Manhattan system with 57,500. Others in the top five are New York City's TelePrompTer Manhattan system with 52,174; the Allentown, Pennsylvania system with 52,000; and the Northampton, Pennsylvania system with 50,000.

The National Cable Television Association (NCTA) estimates the current average size of a cable TV system at 2,240 subscribers.

LOCATION OF CABLE SYSTEMS

All 50 states, Guam, Puerto Rico and the Virgin Islands have operating cable systems within their boundaries. Pennsylvania has the most: 289 systems serving three-quarters of a million subscribers. California ranks next with 269 systems, followed by Texas with 202 systems. Florida, Ohio, Oregon, New York, Washington, and West Virginia each have over 100 systems.

Cable has reached its greatest penetration in small towns and rural areas, according to May 1973 figures from A. C. Nielsen. In the 25 largest metropolitan areas, 3.8 per cent of the TV homes were on the cable. In counties with over 150,000 population the cable penetration was 8.7 per cent. The greatest percentage of subscribers were in counties of 35,000-150,000 population (24.9%) and counties with less than 35,000 population (14.7%).

ORIGIN OF CABLE

The first coaxial cable was developed by Bell Laboratories in the late 1930's and was used for military communications during World War II. After the first CATV systems were built in eastern Pennsylvania and Oregon in 1949, engineers began to refine and improve coaxial cable and increase its channel capacity.

Coaxial cable is currently used in broadcast television and telephone systems, as well as cable television, for conducting a large volume of electronic signals.

OWNERSHIP OF CABLE

Over 73 per cent of the cable TV systems that were operating early in 1973 were owned by other media interests. Broadcasters owned 35 per cent

of the systems, motion picture producers 20 per cent, publishing firms (newspapers and magazines) 17 per cent, and telephone companies owned 1.6 per cent. (Television Digest). By federal regulation, television stations and telephone companies cannot begin to operate cable systems in their service areas. The FCC has not decided whether they will have to divest such systems currently in operation.

The NCTA estimates that about 10 to 15 per cent of the nation's cable subscribers are served by individually-owned systems. More than 70 per cent of the country's subscribers are served by systems owned by the 50 largest cable groups.

In 1973, the top 10 multiple system owners (MSO's) served 45 per cent of all U.S. subscribers, an increase from 34.1 per cent in 1971. The top 25 MSO's served 63 per cent of all subscribers, up from 51.8 per cent in 1971.

Minority groups own and operate three cable companies--in Gary, Indiana; Port Orchard, Washington; and Cable TV Properties, operating in several communities in Arkansas. Three more franchises have been granted to minority owners and are being built in Atlanta, Georgia; Seattle, Washington; and in Benton Harbor, Michigan and nearby communities. Minority groups have organized in over 50 instances including such cities as Dayton, Ohio; Columbus, Ohio; Los Angeles and San Francisco, California; and New York City. Some of these groups have already applied for franchises.

In about 60 small towns, citizens have established subscriber-owned cable systems. They serve from a handful to several hundred subscribers in each community.

There are also 14 municipally-owned systems in the U.S. Most of these are also in small cities, but municipal ownership has become a subject of interest in larger cities as well.

COSTS OF CABLE

The costs of building cable systems vary according to size, type of construction and population density. The Cable Television Information Center estimates that rural systems may cost $2,000-4,000 per mile for either aerial or underground cable, electronics and construction. In cities, costs are likely to reach $6,000-10,000 per mile for aerial systems and $20,000-45,000 for underground construction outside the business district. Within the core city, prices run higher.

The most significant capital costs are for the distribution system itself. Component costs for a typical headend are: tower, $15,000-50,000; building, $5,000-15,000; VHF signal processor and antenna, $2,800 per channel; UHF signal processor and antenna, $3,300 per channel; microwave equipment, $5,500 per channel; studio processing equipment, $1,600 per channel; FM equipment, $1,800; common equipment, $6,000-7,000.

PROFITABILITY OF CABLE

A conventional cable operation in the major market areas has been regarded as capable to generate an attractive profit if the market's population is under 100 homes per plant mile. 150 homes is preferable in an urban area. If the density falls below that figure, according to the Bank of New York, it may be advisable to regionalize the market.

In the past, a system in a city has usually broken even at 20 per cent penetration of homes, and created a profit at 40 per cent penetration.

New systems in the past generally signed up 15-25 per cent of their potential subscribers in the first year of operation, and another 10 per cent the second year. Now the percentage of initial subscribers may be much higher, depending upon the geographical location and the particular independent signals the system is able to carry under the new FCC rules for the top television market areas.

A system's equipment can be fully depreciated in 8-15 years, although the life of the hardware may exceed that. The value of a cable TV system is usually based upon its subscribers; a system sells for between $300 and $500 per subscriber presently. Estimated annual revenues for the industry are $480 million.

CABLE SERVICE

The first CATV systems carried only one to three signals, then developed the capacity to carry five. In 1953, the industry introduced 12 channel capacity. Systems being built in the 100 largest television markets since 1972 are required by the FCC to have at least a 20 channel capacity, and all such systems must carry 20 channels by March 1977. Of all operating systems in mid-1973, 207 had a capacity of over 20 channels; 262 carried 13-20 channels; 2,181 had 6-12 channels; 287 carried only 5 channels; and several dozen systems had fewer than 5 channels.

Technological advances in the cable industry have made 30 channel cable possible when properly equipped with the new family of amplifiers. Systems also increase their channel capacity by using two cables laid side-by-side.

In addition to broadcast television signals, many systems also offer FM radio over the cable.

In several cases, engineers are experimenting with 40 channel cable with two-way capability which will allow transmission as well as reception of messages.

CABLE PROGRAM ORIGINATION

By July 1973, 1,764 systems offered subscribers some sort of local programming. The bulk was automatic originations: the most popular feature was time and weather, followed by news tickers, music, and stock market tickers. 768 systems offered local live, taped or filmed programs, and 233 carried commercial advertising. 996 offered automatic origination only; of these, 322 carried advertising.

Capital costs of program origination vary with quality, not with size of the system. Minimum quality black and white facilities cost as little as $10,000, while an elaborate color system can cost well over $150,000.

In 1972, the Supreme Court upheld an FCC ruling requiring non-automated program origination in systems with more than 3,500 subscribers. However, the FCC appears to have stayed implementation of the rule for the moment.

Many efforts in locally originated programming have been related to education. For example:

. Warner Cable of Malden, Massachusetts produces three programs on the local origination channel in conjunction with the local public school system. "Kids Today" features a different elementary school

class each week, led by various professionals--such as a chef, a dance troupe, a herpetologist--demonstrating what they do. A second program is a twice weekly credit course that trains high school students in program production and produces shows that are cablecast biweekly. The third program, "Youth Forum," is cablecast live each week as high school students, a teacher, and sometimes a professional discuss a topical issue.

. The Natrona County Public Library of Casper, Wyoming, has its own cable channel on the system and provides a "Video Reference Service" to the community. Subscribers phone in questions and the librarian answers over the channel. Recently the library added a dial-a-story service for preschoolers, who can call and request a story from about 40 hours of children's tapes available.

. Two regular college courses interconnected between six campuses of the City University of New York are now cablecast via New York City's Manhattan cable systems. Cable subscribers may audit the humanities and broadcast journalism courses without charge. They hear students on any campus participate in class discussion by telephone. A telephone-microwave relay links the City University Mutual Benefit Instructional Network (CUMBIN) with the cable systems.

. The Hagerstown, Maryland, school district has 42 1/2 weekly hours plus 20-25 weekend hours of available time to cablecast to the surrounding community. Drawing upon 17 years of experience with its closed-circuit TV system, the school district plans on cablecasting adult education courses from the junior college, youth forum discussions, and sample classroom lessons to parents. The system has over 7,000 subscribers.

. Communications majors at Central Missouri State University produce "Captain Platypus Duck" and his friends for children in a five-city area of Missouri. Cablecast live from the CMS campus, the show is written and performed by students. Children from elementary schools in the area participate in the educational show, which is visited by guest professionals in the area. Most of the crew are communications majors, but other students also volunteer.

Other programs of local origination include municipal services, commercial, or entertainment content:

. A ten-part series, "This Is Your Law," was shown on the cable system in San Jose, California. The project was produced jointly by Lincoln University and Communications Library, with technical assistance provided by the cable system. Community groups and volunteers participated in the taped panels, aided by a judge and an attorney as resource people. The topics dealt with legal problems such as rights of young people, rights of the housewife, rights of owners and tenants, and credit and the family.

. In Santa Rosa, California, the comedy-gardening show "Garden Goofs" is shown one-half hour a week. In a lighthearted fashion, the show deals with local gardening problems. It is sponsored by a local commercial nursery, which also supplies the necessary props.

. The Colorado State Employment Department and the local cable operator in Colorado Springs cooperate to cablecast a job-information show which announces salary, experience, and other requirements of available jobs to subscribers.

. Interested citizens in Reading, Pennsylvania can receive video-tape training at a community workshop, then film and produce their own shows for cablecasting on "Video Tapestry." The public access show is seen in one-hour segments four times a week. Tape topics have ranged from yoga lessons to violations in building construction.

. A series for continuing mental health education is produced the first Friday of every month on the Louisiana Hospital Television Network, a cable network linking all the charity hospitals in the state. A two-way talkback system enables the professionals viewing the program to participate in discussion. Programs have dealt with such topics as group process, school dropouts, and alcoholism.

. A 15-minute "City Hall Report" is produced and shown twice every other week by the Winona, Minnesota League of Women Voters in conjunction with the cable system. A League member and a city council member or the mayor discuss the upcoming agenda for the city council meeting. The show has been running for over two years.

TWO-WAY CABLE EXPERIMENTS

As of December 1973, a handful of two-way cable experiments existed in various cities across the country. In a two-way system, television and data signals are sent from the headend to the subscriber terminal, which responds with data signals upstream to the headend computer by way of a separate cable or through different frequencies on the same cable. The sophistication of the two-way system depends upon the level of advancement of the terminal and the computer which processes the return information from the subscribers' homes.

Current two-way technology breaks down into two development states: 1) subscriber response, response, in which the subscriber feeds back limited digital responses to a computer which addresses each terminal in sequence; 2) subscriber initiation, in which the subscriber can request a variety of services from a computer, and which may include a facsimile printer or a videotype player at the subscriber terminal.

A typical subscriber response terminal includes a standard television set with a converter and a 10-botton numeric keyboard which the subscriber uses to respond to questions or to initiate service. Costs for mass-produced terminals could range between $200 to $500. Advanced terminals, with full alphanumeric keyboards and other equipment will exceed $2,000. Computer costs are still undetermined.

Most of the present two-way experiments have tested subscriber response only.

In Orlando, Florida, 27 terminals, each equipped with a 10-character numeric keyboard and a separate switch for pay TV, were used in four merchandising experiments and one credit card verification test. In a second phase of the test, plans call for about 500 terminals to be marketed by the end of 1974.

Subscriber response systems testing pay TV, security alarm services and opinion polls will occur in El Segundo, California, where 20 to 25 terminals are operating. Large scale marketing of the terminals is planned for mid-1974.

A municipally-owned cable system in Monroe, Georgia is experimenting with security systems in five homes.

By the end of 1974, the cable system in Irving, Texas, expects to have 1,500 terminals installed in the community. Burglar alarm, fire alarm, emergency help, and utility meter readings will be possible. Each terminal will have a 5-character keyboard and a key-controlled switch for pay TV.

Other experiments have tested audio-visual return signals and information retrieval.

Two homebound-handicappped children in Overland Park, Kansas were able to interact visually and aurally with a teacher and with each other using a standard TV set, a separate telephone with 12 push buttons, and a microphone.

PAY-CABLE EXPERIMENTS

By August 1973, about a dozen pay-cable companies were furnishing hardware and/or programming material to about 20 cable systems. These systems, in aggregate, had signed up about 35,000 pay TV subscribers.

Cable industry spokesment view pay-cable as a means of generating funds for the development of services beyond the retransmission of broadcast signals.

The pay-cable experiments are designed to test a number of variables, including the reliability of the hardware, the kinds of programs subscribers will buy, and marketing methods. The object of the tests is to arrive at a package that will cause the maximum number of people to subscribe to pay-cable and to remain as subscribers.

The arrangements between the pay-cable companies and the cable operators fall into several categories. Some pay TV systems lease channels from the operator, paying a certain share of the subscriber revenue for the lease. Some pay TV programming is totally a part of the local program origination operations of the cable system, and the operator completely controls all phases of the operation from the procurement of programs through the provision of the hardware, to the operation of the system. Other pay-cable operations are a mixture of functions: sometimes the pay TV company provides only the programming; in other cases the pay TV company provides programming and hardware while the operator performs marketing and billing functions.

All pay TV companies provide first-run movies, and many provide a sports package and "special events." Home Box Office, a pay TV company delivering programs to cable systems in Pennsylvania, provides a Madison Square Garden package and has shown such specials as the Chinese gymnasts. Trans-World programming in Smithtown, New York, provides a separate Channel C in addition to movie and sports channels. This channel shows children's features through mid-afternoon, family features through early evening, and adult theater after 10 p.m.

Methods of billing vary from per-program charges to per-month charges.

Aside from the uncertain reliability of the hardware and the difficulty in obtaining programs, external problems are looming in Congress and the Federal Communications Commission. The recently passed bill prohibiting TV blackout of some sporting events for an experimental period until December 31, 1975 may ban many popular sports events from pay-cable. During November 1973, the FCC heard oral arguments and panel

discussion on whether its pay-cable rules should be modified. At present, they prevent "siphoning"---showing programming regularly telecast on broadcast television during the past two years--as well as series programming, and they specify that movies over two years and less than ten years old may not be shown. The rules also prohibit pay-cable from cablecasting feature films and sporting events during more than 90 per cent of their programming time. As of early January 1974, the FCC had not issued a decision.